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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/832,980 | 04/12/2001 | Richard Geiss | 10868-US | 9734 |

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| EXAMINER | |
|---|---|
| PHAM, TUAN | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2643 | |

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/832,980 | GEISS ET AL. | |
| | Examiner | Art Unit | |
| | TUAN A. PHAM | 2643 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *30 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *4,5 and 19-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4,5 and 19-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

REXFORD BARNIE
PRIMARY EXAMINER

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5-11-2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Information Disclosure Statement*

*1.* The information disclosure statement (IDS) submitted on 05/11/2005 has been considered by Examiner and made of record in the application file.

### *Claim Objections*

2. Claims 21 is objected to because of the following informalities:

Examiner is assumed that claim 21, lines 7, should change to "limiting said data band return loss signal to the data band". Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19, 21, 23, 29, 31, and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The newly added subject matter "voice and data return loss circuit" to independent claims 19, 21, 23, 29, 31, and 33 that not clearly disclose in the original specification.

A call was made to Attorney of record Thomas Adam on 08/26/2005 to clarify the newly added subject matter at independent claims 19, 21, 23, 29, 31, and 33. Therefore, claims 19, 21, 23, 29, 31, and 33 are rejected under 112, second paragraph.

***Response to Arguments***

4. Applicant's arguments with respect to claims 4-5, and 19-38 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**6. Claims 4-5, 19-20, 23-30, and 33-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiko (U.S. Patent No.: 6,212,259) in view of Song (U.S. Patent No.: 6,694,019) and further in view of Rabenko et al. (Pub. No.: 2005/0031097, hereinafter, "Rabenko").**

**Regarding claims 19 and 29**, Kiko teaches a method and termination circuit for a subscriber line interface connected to a transmission medium for bi-directional communication of both voice and data signals, the termination circuit comprising (see figure 12):

detection means to detect voice and data signals at a connection point to the transmission medium and providing corresponding detected voice and data signal (see figure 12, circuit 59d detect voice and data from TIP and RING, col.12, ln.5-30), and

limiting the voice band return loss signal to the voice band (see figure 1, blocking filter 18 is for the voice band).

It should be noticed that Kiko fails to teach a far end echo cancellation means for deriving from the detected voice signal a voice band return loss signal, and combining the voice band return loss signal with the voice signal for transmission to the transmission medium. However, Song teaches a far end echo cancellation means (see figure 4, far end echo canceller 170) for deriving from the detected voice signal a voice band return loss signal (see figure 4, input voice at receive path 410, col.4, ln.21-47), and combining the voice band return loss signal with the voice signal for transmission to the transmission medium (see figure 4, summing circuit 460, col.4, ln.21-47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Song into view of Kiko in order to reduce the echo caused by signal reflections from a hybrid circuit as suggested by Song at column 1, lines 36-52.

Kiko and Song, in combination, fails to teach a far end echo cancellation means for deriving from the detected data signal for transmission to the transmission medium. However, Rabenko teaches such features (see figure 20, adaptive 575, Rx data input col.18, [0199]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Rabenko into view of Kiko and Song in order to reduce the echo caused by signal reflections from a hybrid circuit as suggested by Song at column 1, lines 36-52.

**Regarding claims 20 and 30**, Rabenko further teaches a termination circuit comprising transhybrid loss and near echo cancellation means comprising an analog circuit responsive to data signals to be transmitted via the connection point for providing estimates of a transhybrid component value and a near end echo value, an analog data band filter for restricting the estimates to the data band, and means for subtracting the restricted estimates from incoming signals receives from the transmission medium via the connection point (see figure 20, hybrid 574, adaptive filter 575, analog circuit 589, high pass filter 586, subtract 576, col.18, [0199]).

**Regarding claim 25**, Rabenko further teaches a termination circuit having an analog to digital converter for digitizing the incoming data signal after the hybrid component and the near end echo have been cancelled (see figure 20, ADC 589, hybrid 574, adaptive filter 575, col.18, [0199]).

**Regarding claim 26**, Kiko further teaches a termination circuit having a voice band filter and a data band filter to receive the incoming data signal, and to separate the

incoming signals into separate voice band and data band signals for processing by separate analog to digital converters (see figure 1, HPF for data which is included a ADC, blocking filter for voice which is included a ADC).

**Regarding claims 27 and 37**, Rabenko further teaches a termination circuit wherein the incoming signal after cancellation of transhybrid components and near end echo is separated into voice band and data band signals, scaled as separate signal, added together to form a composite signal and digitized in an analog to digital converter (see figure 20, hybrid 573, ADC 589, adaptive filter 575, col.18, [0199]).

**Regarding claims 28 and 38**, Rabenko further teaches a termination circuit wherein the incoming signal after cancellation of transhybrid components and near end echo is separated into voice band and data band signals, scaled as separate signal, added together to form a composite signal and digitized in an analog to digital converter (see figure 20, hybrid 573, ADC 589, adaptive filter 575, col.18, [0199]), and Kiko further teaches voice band filter and data band filter (see figure 12, circuit 59d detect voice and data from TIP and RING, col.12, ln.5-30).

**Regarding claim 4**, Kiko further teaches a termination circuit wherein the transmission medium is a twisted copper pair (see figure 1, phone line 26).

**Regarding claim 5**, Kiko further teaches a termination circuit wherein bi-directional communication is implemented utilizing a DSL (see col.5, ln.25-35).

**Regarding claims 23 and 33**, Kiko teaches a method and termination circuit for a subscriber line interface connected to a transmission medium for bi-directional

communication of both voice and data signals, the termination circuit comprising (see figure 12):

detection means to detect voice and data signals at a connection point to the transmission medium and providing corresponding detected voice and data signal (see figure 12, circuit 59d detect voice and data from TIP and RING, col.12, ln.5-30), and

limiting the voice band return loss signal to the voice band (see figure 1, blocking filter 18 is for the voice band).

It should be noticed that Kiko fails to teach a far end echo cancellation means for deriving from the detected voice signal a voice band return loss signal, and combining the voice band return loss signal with the voice signal for transmission to the transmission medium. However, Song teaches a far end echo cancellation means (see figure 4, far end echo canceller 170) for deriving from the detected voice signal a voice band return loss signal (see figure 4, input voice at receive path 410, col.4, ln.21-47), and combining the voice band return loss signal with the voice signal for transmission to the transmission medium (see figure 4, summing circuit 460, col.4, ln.21-47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Song into view of Kiko in order to reduce the echo caused by signal reflections from a hybrid circuit as suggested by Song at column 1, lines 36-52.

Kiko and Song, in combination, fails to teach a far end echo cancellation means for deriving from the detected data signal a data band return loss signal, and combining the data band return loss signal with the data signal for transmission to the transmission

medium. However, Rabenko teaches such features (see figure 20, adaptive 575, Rx data input col.18, [0199]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Rabenko into view of Kiko and Song in order to reduce the echo caused by signal reflections from a hybrid circuit as suggested by Song at column 1, lines 36-52.

**Regarding claims 24 and 34**, Rabenko further teaches a termination circuit comprising transhybrid loss and near echo cancellation means comprising an analog circuit responsive to data signals to be transmitted via the connection point for providing estimates of a transhybrid component value and a near end echo value, an analog data band filter for restricting the estimates to the data band, and means for subtracting the restricted estimates from incoming signals receives from the transmission medium via the connection point (see figure 20, hybrid 574, adaptive filter 575, analog circuit 589, high pass filter 586, subtract 576, col.18, [0199]).

**Regarding claim 35**, Rabenko further teaches a termination circuit having an analog to digital converter for digitizing the incoming data signal after the hybrid component and the near end echo have been cancelled (see figure 20, ADC 589, hybrid 574, adaptive filter 575, col.18, [0199]).

**Regarding claim 36**, Kiko further teaches a termination circuit having a voice band filter and a data band filter to receive the incoming data signal, and to separate the incoming signals into separate voice band and data band signals for processing by

separate analog to digital converters (see figure 1, HPF for data which is included a ADC, blocking filter for voice which is included a ADC).

7. **Claims 21-22, and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiko (U.S. Patent No.: 6,212,259) in view of Rabenko et al. (Pub. No.: 2005/0031097, hereinafter, "Rabenko") and further in view of Song (U.S. Patent No.: 6,694,019).**

**Regarding claims 21 and 31**, Kiko teaches a method and termination circuit for a subscriber line interface connected to a transmission medium for bi-directional communication of both voice and data signals, the termination circuit comprising (see figure 12):

detection means to detect voice and data signals at a connection point to the transmission medium and providing corresponding detected voice and data signal (see figure 12, circuit 59d detect voice and data from TIP and RING, col.12, ln.5-30), and

limiting the data band return loss signal to the data band (see figure 1, HPF 41 is for the data band).

It should be noticed that Kiko fails to teach a far end echo cancellation means for deriving from the detected data signal a data band return loss signal, and combining the data band return loss signal with the data signal for transmission to the transmission medium. However, Rabenko teaches such features (see figure 20, adaptive 575, Rx data input col.18, [0199]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Rabenko into view of Kiko in order to reduce the echo caused by signal reflections from a hybrid circuit.

Kiko and Rabenko, in combination, fails to teach a far end echo cancellation means for deriving from the detected voice signal for transmission to the transmission medium. However, Song teaches such features (see figure 4, input voice at receive path 410, echo canceller 170, col.4, ln.21-47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Song into view of Kiko and Rabenko in order to reduce the echo caused by signal reflections from a hybrid circuit as suggested by Song at column 1, lines 36-52.

**Regarding claims 22 and 32**, Rabenko further teaches a termination circuit comprising transhybrid loss and near echo cancellation means comprising an analog circuit responsive to data signals to be transmitted via the connection point for providing estimates of a transhybrid component value and a near end echo value, an analog data band filter for restricting the estimates to the data band, and means for subtracting the restricted estimates from incoming signals receives from the transmission medium via the connection point (see figure 20, hybrid 574, adaptive filter 575, analog circuit 589, high pass filter 586, subtract 576, col.18, [0199]).

***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tuan A. Pham** whose telephone number is (571) 272-8097. The examiner can normally be reached on Monday through Friday, 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Curtis Kuntz can be reached on (571) 272-8097 and

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Art Unit 2643
September 2, 2005
Examiner

Tuan Pham

REXFORD BARNIE
PRIMARY EXAMINER